A DOSE-FINDING STUDY OF GABAPENTIN FOR POST-CESAREAN DELIVERY PAIN MANAGEMENT: LIMITED EFFICACY OF A SINGLE PREOPERATIVE DOSE

Jonathan Short¹, Paul Bernstein², Vibhuti Shah³, Kristi Downey¹, Susan Guest⁴, Jose C. Carvalho¹

1. Department of Anesthesia and Pain Management, Mount Sinai Hospital, Toronto, ON, Canada
2. Obstetrics and Gynecology, Mount Sinai Hospital, Toronto, ON, Canada
3. Pediatrics, Mount Sinai Hospital, Toronto, ON, Canada
4. Nursing, Mount Sinai Hospital, Toronto, ON, Canada

Introduction: A single preoperative dose of gabapentin 600 mg reduced post-cesarean pain and improved maternal satisfaction, but its use was associated with increased maternal sedation in the first hours after delivery (1). We hypothesized that a lower dose of gabapentin may be effective, with less sedation. Mechanical temporal summation (TS) can be used to predict individuals who may experience increased postoperative pain (2). We also hypothesized that women who exhibit TS would have greater benefit from gabapentin.

Methods: We conducted a double-blind, randomized, placebo-controlled study. Women undergoing elective cesarean delivery were randomized to oral gabapentin 300 or 600 mg, or placebo, one hour before surgery. TS testing was performed at that time and a difference ≥1 cm between the 1st and 10th stimuli was considered TS+. Standard spinal anesthesia and postoperative analgesia was instituted, including intrathecal fentanyl and morphine, systemic diclofenac, acetaminophen and PRN morphine. Patients were assessed at 6, 12, 24, and 48 hours after surgical incision, for pain at rest and on movement, satisfaction with analgesia, supplemental narcotic consumption, and adverse effects. Apgar scores, cord blood gases, neonatal interventions and breastfeeding difficulties were noted. Three months after delivery, patients were contacted for assessment of chronic pain. The primary outcome was pain on movement at 24 hours.

Results: 132 women were randomized and six excluded. Pain scores and maternal satisfaction at 24 hours did not differ between the three groups (p>0.05). Gabapentin 300 mg was associated with lower pain scores and higher maternal satisfaction at 6 and 48 hours. Gabapentin 600 mg showed similar trends, but without significant differences from placebo. No differences in adverse effects were noted between groups. There was no apparent benefit in TS+ patients, although overall pain scores were significantly higher in these patients irrespective of the group.

Discussion: We were unable to replicate the beneficial effects of gabapentin (1) in this study and did not demonstrate a dose-effect response at 300-600 mg. Gabapentin 300 mg might be a suitable dose in this setting, but a multiple dose regimen may be necessary for significant clinical effect.